

REMARKS

This is intended as a full and complete response to the Office Action dated March 24, 2004, having a shortened statutory period for response set to expire on June 24, 2004. Please reconsider the claims pending in the application for reasons discussed below.

The specification is objected to by the Examiner, because of informalities in paragraphs [0011], [0012], [0033], and in the Brief Description of the Drawings. Paragraphs [0011] and [0012] have been amended to replace the phrase "nine processing" with "non-processing," as requested by the Examiner. Applicants have amended paragraph [0033] to remove the reference to Figure 8, in accordance with the drawings. Applicants have added new paragraphs [0019.1] and [0019.2] to describe Figures 6 and 7 in the Brief Description of the Drawings, as requested by the Examiner. Support for new paragraph [0019.1] is found in paragraph [0022], and support for new paragraph [0019.2] is found in paragraph [0026]. Paragraphs [0021], [0024], and [0027] have been amended to correct minor editorial problems. Applicants submit that the changes made herein do not introduce new matter. Applicants respectfully request withdrawal of the objection to the specification.

Claims 1-8 and 28-36 remain pending in the application and are shown above. Claim 9 has been canceled by Applicants. Claims 1-8 and 28-36 stand rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 1 and 28 are amended to more clearly illustrate the claimed subject matter. Claim 7 is amended as to matters of form. Applicants submit that the changes made herein do not introduce new matter.

Claim 2 is objected to because the first occurrence of the word "in" in claim 2 should be "is." Applicants have amended claim 2 as requested by the Examiner. Applicants submit that the changes made herein do not introduce new matter. Applicants respectfully request withdrawal of the objection to claim 2.

Claims 9 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have canceled claim 9.

Claims 1-8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Hongo, et al.* (U.S. Patent No. 6,517,894). As amended, claim 1 recites an electrochemical plating apparatus comprising a bleed line in fluid communication with a plating cell at a position in the plating cell between an overflow outlet and an anode in the plating cell. *Hongo, et al.* shows a plating apparatus having inlets for plating solutions and an outlet tube 28 at the bottom of the apparatus (Figure 5, column 5, lines 42-64). *Hongo, et al.* does not teach or suggest a plating apparatus having an overflow outlet or a bleed line in fluid communication with a plating cell at a position in the plating cell between an overflow outlet and an anode in the plating cell. Thus, *Hongo, et al.* does not teach, show, or suggest an electrochemical plating apparatus, comprising a plating cell configured to contain a plating bath below an overflow outlet, a substrate support member positioned in the plating cell and configured to selectively contact the plating bath with a substrate secured thereto, a fluid supply line in fluid communication with the plating cell, a selectively actuated check valve positioned in the fluid supply line, an anode in the plating cell, and a bleed line in fluid communication with the plating cell at a position in the plating cell between the overflow outlet and the anode, as recited in amended claim 1. Applicants respectfully request withdrawal of the rejection of claim 1 and of claims 2-8, which depend thereon.

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Uzoh, et al.* (U.S. Patent No. 6,113,769). *Uzoh, et al.* shows a plating apparatus that includes conduits 54 and 55 as an outlet and an inlet respectively, connected to a recirculation pump 53 (Figure, column 7, lines 9-14). *Uzoh, et al.* also shows an inlet 27 from a premix tank 17, a recycle conduit outlet 39, and a drain conduit 37 (Figure, column 4, lines 14-22, column 5, lines 17-21, column 5, lines 5-7). However, *Uzoh, et al.* does not teach, show, or suggest a plating apparatus having a bleed line in fluid communication with a plating cell at a position in the plating cell between an overflow outlet and an anode in the plating cell. Thus, *Uzoh, et al.* does not teach, show, or suggest an electrochemical plating apparatus, comprising a plating cell configured to contain a plating bath below an overflow outlet, a substrate support member positioned in the plating cell and configured to selectively contact the plating bath with a substrate secured thereto, a fluid supply line in fluid communication with the plating cell, a

selectively actuated check valve positioned in the fluid supply line, an anode in the plating cell, and a bleed line in fluid communication with the plating cell at a position in the plating cell between the overflow outlet and the anode, as recited in amended claim 1. Applicants respectfully request withdrawal of the rejection of claim 1 and of claim 2, which depends thereon.

Claims 28 and 29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Woo, et al.* (U.S. Patent No. 6,103,085). As amended, claim 28 recites an electrochemical plating apparatus comprising a plating bath below an overflow outlet and a bleed line in fluid communication with a plating cell at a position in the plating cell between the overflow outlet and an anode in the plating cell. *Woo, et al.* describes a plating apparatus having a recirculation circuit 7 including a circuit inlet 11 that is shown as being located above the anode in the plating chamber 2 and is indicated by arrows to be an outlet from the plating chamber 2 (Figure 1, column 2, lines 4-15). *Woo, et al.* also shows a conduit 14 that introduces solution from pump 13 of the recirculation circuit 7 to the plating chamber 2 (Figure 1, column 2, lines 16-19). *Woo, et al.* does not show or describe inlets or outlets to the chamber 2 other than the inlet and outlet from the recirculation circuit 7. Applicants submit that there is no teaching or suggestion in *Woo, et al.* of an electroplating apparatus that includes an overflow outlet in addition to a bleed line positioned between an anode in the plating cell and the overflow outlet. Thus, *Woo, et al.* does not teach, show, or suggest an electrochemical plating apparatus, comprising a plating cell configured to contain a plating bath below an overflow outlet, a substrate support member positioned in the plating cell and configured to contact a substrate with the plating bath, a fluid supply line in fluid communication with the plating cell, an anode in the plating cell, and a bleed line in fluid communication with the plating cell at a position in the plating cell between the overflow outlet and the anode, as recited in amended claim 28. Applicants respectfully request withdrawal of the rejection of claim 28 and of claim 29, which depends thereon.

Claims 1-8 and 28-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Woo, et al.* in view of *Adams, et al.* (U.S. Patent No. 6,143,155). As discussed above, *Woo, et al.* does not describe or suggest an electroplating apparatus that includes an overflow outlet in addition to a bleed line and a fluid supply line in

communication with the plating cell. *Adams, et al.* describes an electrochemical plating apparatus comprising a fluid input line 490 having a three-way valve 735 and a withdrawal line 495 having a three-way valve 685 (Figures 6, 7, column 11, lines 3-12). Applicants submit that *Adams, et al.* does not teach or suggest an overflow outlet in the electrochemical plating apparatus or a bleed line between an anode and an overflow outlet. Applicants further submit that the combination of *Woo, et al.* and *Adams, et al.* does not suggest or motivate including an overflow outlet in an electrochemical plating apparatus.

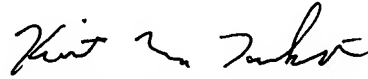
Thus, *Woo, et al.* in view of *Adams, et al.* does not teach, show, or suggest an electrochemical plating apparatus, comprising a plating cell configured to contain a plating bath below an overflow outlet, a substrate support member positioned in the plating cell and configured to selectively contact the plating bath with a substrate secured thereto, a fluid supply line in fluid communication with the plating cell, a selectively actuated check valve positioned in the fluid supply line, an anode in the plating cell, and a bleed line in fluid communication with the plating cell at a position in the plating cell between the overflow outlet and the anode, as recited in amended claim 1. Applicants respectfully request withdrawal of the rejection of claim 1 and of claims 2-8, which depend thereon.

Furthermore, *Woo, et al.* in view of *Adams, et al.* does not teach, show, or suggest an electrochemical plating apparatus, comprising a plating cell configured to contain a plating bath below an overflow outlet, a substrate support member positioned in the plating cell and configured to contact a substrate with the plating bath, a fluid supply line in fluid communication with the plating cell, an anode in the plating cell, and a bleed line in fluid communication with the plating cell at a position in the plating cell between the overflow outlet and the anode, as recited in amended claim 28. Applicants respectfully request withdrawal of the rejection of claim 28 and of claims 29-36, which depend thereon.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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